

# EFFICIENCY

News From BPA—Your Northwest Energy Partner

## Successful Weatherization Partnership

Collaboration between the Tulalip Tribe, located in Marysville, WA, and the Snohomish County Energy Assistance and Weatherization Program has led to the successful implementation of a program to weatherize Tulalip tribal homes. Under its Low Income Weatherization (LIWx) Program, BPA provided funding in 2000, which was dedicated to weatherization services for qualified tribal homes. The program did not encounter much success until Steve Gobin and Helen Fenrich of the Tulalip Tribes and Bill Beuscher and Edwina Housley of Snohomish County Weatherization partnered to weatherize 30 eligible tribal homes.

Participation of the Tulalip Tribes in the LIWx program illus-

trates the importance of community outreach to tribal members for the successful implementation of the program. The Tulalips determined eligibility for the program, encouraged tribal member participation, referred eligible members, and provided valuable support in the coordination of home energy audits, installation of measures, and final inspections. These activities may not have been possible without tribal participation. Building on the accomplishments of last year, a new agreement was recently issued to weatherize up to an additional 20 homes on the Tulalip Indian Reservation. In addition to Steve, Helen, Bill, and Edwina, special thanks goes to Lucinda Enick and Sherry Guzman of the Tulalip Tribes for their contribution to the success of this effort.

BPA provides grants to State Energy Offices to implement the LIWx program through local community action agencies. Historically, the LIWx program has had little success in reaching qualified members of Northwest Tribes within the BPA service territory. To address this situation, funding was made available *Weatherization, continued from page 1*

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After a meeting to discuss the second phase of weatherization, officials met in front of the Tulalip totem. Left to right: Bill Beuscher, Supervisor, Snohomish County Energy Assistance and Weatherization Programs; Steve Gobin, Tulalip Tribes Government Relations; Helen Fenrich, Tulalip Tribes Government Affairs; Edwina Housley, Snohomish County Weatherization Program; Lucinda Enick, Tulalip Tribes, Social Services Case Manager; and Sherry Guzman, Tulalip Tribes, Social Services Manager.

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## Funding New Low-Income Home Upgrades through C&RD

Mason County PUD #3, Shelton, WA, is funding upgrades (in their area) to new low-income housing constructed by Habitat for Humanity. The incremental cost of the upgrades is funded under BPA's Conservation and Renewables Discount.

### David Douglas Ribbon Cutting Ceremony

Oregon Governor John Kitzhaber attended the "ribbon cutting" ceremony on May 30, 2002, at David Douglas High School, Portland, OR. The ceremony celebrated the completion of a transportation project that spanned several graduating classes.

Tom Ullmann, Renewable Energy Facilitator for the City of Portland, received an "Envision the Future" Award in 1997 to complete his proposed project of installing an electric (DC) trolley for transporting students between buildings at the high school. Students with disabilities can take the trolley instead of using the existing breezeway, which is over 720 feet long to travel between buildings spread across the school's large campus. Up to 25 students can ride at once.

**Top:**  
Oregon  
Governor  
John



Kitzhaber  
drove the David  
Douglas trolley on  
its inaugural run.  
**Bottom:** A wind  
turbine and solar panels  
on top of this tower  
provide the energy for the  
trolley.



The electric motor on the trolley is powered by batteries on board. The batteries are recharged at night from another set of batteries that store the energy produced by photovoltaic (PV) panels and a wind turbine throughout the day. When the storage batteries are fully charged, additional renewable energy produced from the PV panels and wind turbine generates AC power and is delivered to a local 120/240 VAC panel.

Portland General Electric donated six 250-watt solar panels, the use of a boom truck, and made a \$5,000 challenge grant. The community met that challenge. The solar panels with the wind

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Jay Himlie, Power Supply Engineer and Energy Services Department Supervisor for Mason, is a member of the Regional Technical Forum. At a recent meeting, the Forum discussed the C&RD retrofit weatherization of existing low-income homes with 100 percent funding under the C&RD. Jay presented the forum with a new low-income funding option: fund 100 percent of the incremental costs of upgrading new low-income homes constructed by Habitat for Humanity. Habitat has recently been approved by the RTF as a "qualified" organization under the C&RD.

Mason reviews Habitat's plans and recommends energy efficiency upgrades to the home under construction. The costs of those recommended and implemented upgrades can be funded under the BPA C&RD. Mason makes a donation to Habitat equal to the cost of the efficiency upgrades. Mason can claim 100 percent of the costs as a "Limited Donation" under the C&RD.

One new low-income Habitat home is under construction through this option. The next one is probably six months down the road. Watch for a follow-up article and photos in a future newsletter.

This modification to the RTF qualified measures demonstrates the flexibility of the organization when a good idea is presented. The new option benefits everyone involved: the utility, Habitat, and the consumer. — Mark Johnson (503) 230-7669

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## Fuel Cell Update

BPA Energy Efficiency has produced an 8-minute video, entitled "Fuel Cells, the Power for the Future, about the BPA Fuel Cell program, as well as a 4-minute "looped" version for energy fairs. The video will premiere in the lobby of the BPA Headquarters Building in Portland on June 14, and all interested parties are welcome. Copies of the videos will be distributed to customers in June. Please contact Mira Vowles at (503) 230-4796 if you are interested in getting a copy.

September 18 and 19 have tentatively been set for a Portland customer meeting. Energy Efficiency will be working with utility representatives, IdaTech, Global Thermoelectric, and Methanex over the summer to make sure the meeting satisfies our customers' needs. Final agendas will be sent out in August.

Mark Jackson has been the visionary behind BPA's Fuel Cell Program, which was designed to accelerate the commercial availability of fuel cell systems in the 1 to 10 kilowatt range to meet the distributed power needs of BPA customers. Fuel cells need to cost less than \$10,000 and generate electricity for less than eight cents per kWh to be considered cost effective.



Tim Engleson with Lincoln Electric, Eureka, MT, monitors the electrical output of Lincoln's fuel cell.

### Fuel Cell Milestones:

- 1998: Mark Jackson worked with IdaTech, LLC, Bend, OR, to build the first residential sized, proton exchange membrane (PEM) fuel cell prototype.
- 2000: BPA partnered with Utility Customers to field test six "Alpha" units (*Central Electric, Emerald PUD, Energy Northwest, Fergus Electric, Lincoln Electric and PNGC*).
- 2002: The same "Alpha" partners plus Eugene Water and Electric Board, Grant County PUD and PGE are field testing "Beta" units. The Beta units, dubbed "Discovery" units by IdaTech have over 1,300 hours of operation since January 1, 2002, and an average total efficiency of 45 percent.

— Mira Vowles (503) 230-4796

## Cascade Locks Quick-Start Lighting Retrofits a Success

The City of Cascade Locks has completed a highly successful commercial lighting retrofit program. According to Tracy Hupp, Power Department Superintendent for the City, the town of about 1,130, has 28 commercial facilities, including several motels and restaurants, a grocery store, several gas stations, three sawmills, and some other small commercial buildings. These nonresidential loads make up about half of the City's total load.

After several meetings with Jack Callahan, BPA Energy Efficiency mechanical engineer, to discuss options, Hupp had a program to market to customers. The plan proposed was a demonstration project under ConAug with the City working jointly with BPA. The idea was to apply Bonneville's experience doing large-scale lighting retrofits in federal buildings to quickly and efficiently get the work done. The City would then be able to focus on selling the lighting retrofits and the financial agreements to the customer. The City's close relationship with its customers would turn out to be a real key to getting good participation. Hupp visited all 28 commercial facilities to determine interest in the lighting retrofit program; all wished to participate.

A contractor was hired to perform the first step of the retrofit process – audits to determine the number of lights to retrofit in each facility. The audits began in August 2001. The majority of the retrofits were completed by December 31, 2001.

BPA provided financing, procurement and project management to do the lighting audits and retrofits. The City provided all customer contact, including presenting the retrofit offer; signing audit, installation and financing agreements; and billing the customer. The City also helped the customers with applications for the Business Energy Tax Credit offered by the State of Oregon. To qualify for the tax credit, a facility must cut energy consumption by at least 25 percent. All of the City's commercial retrofits saved at least the 25 percent, with some achieving up to 60 percent on lighting on the portion of the energy consumption due to lighting.

The City learned several lessons, chief of which is to begin the retrofit process with a meeting between the auditor, facility owner, and utility representative to ensure that the customer is clear on what to expect. Some customers thought their older lighting fixtures would be replaced, not retrofitted. There were also a few problems with dimmable fluorescents at several facilities. Overall, however, the program was a success.



*Continued on page 6*



# ★ ★ GALAXY OF STARS ★ ★



Above: Carol Neely, City of Bandon, demonstrated compact and torchiere fluorescent lamps at the City's March lighting event.

Right: Mr. Zippy enticed 200 individuals into learning about energy-efficient lighting.



## Bandon CFL/TFL Event

The City of Bandon, along with the Northwest Energy Efficiency Alliance, BPA, and local retailers held a Compact Fluorescent and Torchiere Fluorescent Lamp Awareness Event at the City's Council Chambers on March 15, 2002. Displays and literature explaining and demonstrating the safety and savings of torchiere lamps and CFLs over halogen and incandescent products were the focus of the event. An estimated 500 coupons good for \$15 off torchiere lamps were given to attendees. Old halogen lamps were accepted by the City for disposal. The City held a drawing for two torchiere lamps. Also given away were numerous pens, magnets, t-shirts and brochures.

In spite of unfavorable weather, Mr. Zippy invited approximately 200 people into City Hall for hot coffee, cookies, and information. (Submitted by Carol Neely.)

-- Margaret Lewis (503) 230-7552

## RTF Approves Calculator for Variable Frequency Drives

In the April newsletter, Energy Efficiency reported on a project that installed a variable frequency drive (VFD) on a milking vacuum pump motor at a dairy in Tillamook PUD service territory. The success of that project has motivated other farmers and utility staff to implement the same technology.

BPA engineers Todd Amundson and Tony Koch offered to perform pre/post-metering, or to provide utilities with the equipment to meter their dairy projects. These new dairy projects include two at Tillamook PUD, one at Pacific County PUD, and one at Lewis PUD. Metered data from these and other recent similar projects showed that installation of a VFD on the milking vacuum pump motor produced energy savings in the 45-80 percent range. These substantial metered energy savings motivated BPA to develop a deemed savings calculator for the Conservation and Renewables Discount program. The deemed calculator as proposed by BPA engineers was approved at the May 7, 2002, RTF meeting.

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## Okanogan County PUD Torchiere Turn-in

Okanogan County PUD, Okanogan, WA, held a Torchiere Turn-in on April 27, 2002. All of the 183 torchiere fluorescent lamps available were given away in the first 50 minutes of the event. OPUD staff handed out rain checks for the remainder of the event. At the end of the day, a total of 417 lamps and rain checks had been given to OPUD customers, and an industrial-sized dumpster was filled with halogen lamps. Geoffrey Talkington of ENERGY STAR stopped by the PUD and passed out free ENERGY STAR t-shirts to staff and to the first three people in line. The Okanogan and Omak fire departments were present as well, passing out information on the safety aspects of the lamps. They demonstrated the fire hazard halogen torchieres present by popping popcorn and boiling water on the lamps. They passed on cooking eggs, probably because they couldn't decide on fried or scrambled. The PUD has received many calls over the past few weeks from customers who would like to hold another torchiere turn-in in the future. See the PUD website: [www.okanoganpud.org](http://www.okanoganpud.org).

--Rosalie Nourse (509) 358-7463



During the first 50 minutes of the OPUD halogen torchiere turn-in, all 183 torchiere fluorescent lamps were handed out. The rest of the customers in line received rain checks.

OPUD staff were pleased that the torchiere turn-in was such a success. Pictured with turned-in lamps are (l to r): Steve Brown, Conservation Assistant; Debra Peters, Energy Services Coordinator; and Dick Waddell, Engineer.



Norm Goodbla, Conservation Manager at Lewis County PUD, stands next to a 20 hp vacuum pump with a VFD installed. Note the larger diameter PVC piping on the intake header.

## Anemometers Measure Wind Conditions

On May 3, Michael Huber, BPA Energy Efficiency engineer in Seattle, and John Friederichs, Conservation manager at Ferry County PUD, WA, led a group of PUD workers and local volunteers to lift into position a 100-foot meteorological tower on a plane above the shores of Lake Roosevelt, at the mouth of the Sanpoil River. The tower hosts two anemometers (to measure velocity at two heights and estimate wind shear as well) and a directional vane. The site is located on private land within the borders of the Colville Reservation, so the results will be given to the Colville tribes as well as to the landowner and the PUD. The tower will remain at that location for a year, then be moved to another location in Ferry County.

Another set of anemometers was installed in April on an existing radio tower by the US Coast Guard near Coos Bay, OR. Both of these sites will send data on a monthly basis to Huber for processing. At the end of the year, the results will be given to an independent wind consultant, and also to the regional database hosted at Oregon State University.



Michael Huber and John Friederichs lead a group of Ferry County PUD workers and local volunteers to lift a 100 foot

meteorological tower into place on a plane above the shores of Lake Roosevelt.

### *VFD continued from page 4*

For those of you technically minded, or simply curious, the energy savings are achieved by reducing the airflow through the vacuum pump. The milking process requires extremely stable vacuum supply to the milking machine.

Traditionally, this is achieved by “dumping” the excess air not used by the milking machine to ambient, and thus loads the vacuum pump close to 100%. The new measure stops the “dumping” to ambient and slows the vacuum pump down in real time to meet the required vacuum. Part of the retrofit should include installation of new, larger PVC piping for the air header, in order to help maintain stable vacuum. The VFD does not respond as quickly as the old system to air demand spikes.

-- Tony Koch (206) 220-6777 or Todd Amundson (503) 230-5491

## Milton-Freewater Supports Conservation

The City of Milton-Freewater has always been a proponent of conservation and load management. Mike Charlo, Electric Superintendent, is noted as being a pioneer in load management systems for the northwest. He saw the possibilities and helped to begin the City's programs in 1985.



Mike Charlo, Electric Superintendent at the City of Milton-Freewater

The City started with a SCADA system that included voltage reduction and later expanded the load management system by adding a radio energy management system (REMS). This direct load control system uses an FM radio signal sent to a set of relays installed in the customer's home or office to interrupt the thermostat circuit for electric heating and air conditioning systems and water heaters. The city's experience shows that a residential water heater can be disconnected for the entire time of their winter morning peak, which is around 3 hours, without causing an inconvenience to the family. The space heating is cycled on and off for periods of 30 minutes each. This timing provides the maximum amount of load control for the least amount of customer discomfort.

Left to Right: Les Wright, Electrical Maintenance Manager, and Ordell “Gus” Gustafson, Plant Manager, Milton-Freewater TreeTop facility.



A Con Aug project at the Milton-Freewater TreeTop facility was brought to Energy Efficiency by Pat Didion, City of Milton-Freewater. Four undersized condensers were replaced at the TreeTop North Plant cold storage with one large condenser equipped with adjustable speed drives designed to operate the system at lower head pressures. Benefits from this retrofit, besides energy savings, include lower maintenance costs as well as system reliability and safety. System commissioning and inspection shows even higher energy savings than estimated. The plant was built in 1980's.

Photos by Leanne Burris, City of Milton-Freewater

-- Chris Tash (509) 527-6217

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## Save a Watt Blazer Game Pics

The Save a Watt characters visited the Blazers Portland NBA home game on March 27, dedicated by the Blazers to BPA's energy conservation character. The Blazers will promote Save a Watt at seven home games this spring, offering a new audience for Save a Watt's energy conservation message. Save a Watt also may visit other teams around the region.



Clockwise from left: Blazer cheerleaders were happy to display Save a Watt masks to their fans. Two SAW characters man the ENERGY STAR™ booth. SAW masks wait for fans to claim them.

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## Earth Day Expo at Oregon Zoo

On April 28, BPA, in conjunction with other organizations, hosted an Earth Day Expo at the Oregon Zoo in Portland. The event featured activities, exhibits, booths, handouts, and Miss America.



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## Cascade Locks, continued from page 3

All customers are happy with the lower energy costs and increased light intensity the retrofit achieved. A couple of restaurants were astonished at how much more light they had, especially in the areas where food is prepared.

"We show the customer what they would have paid for energy with the old lighting (based on how many lights are on for so

to focus efforts on tribal homes. This funding is channeled through two funding pathways: BPA can issue grant money that is specifically earmarked for weatherizing tribal homes to the State and BPA can also issue grants directly to the tribe. The grant to the tribe typically covers program outreach efforts and administrative aspects associated with the implementation of the program.

BPA has worked with several other Northwest Tribes to ensure that weatherization services reach eligible tribal members. An important aspect of the tribal program is to maintain enough flexibility so that the specific needs of the tribe are met. If you are interested in this program please contact BPA's Public and Tribal Affairs Manager, Sonya M. Tetnowski, at (503) 230-7631 or the Tribal Energy Efficiency Representative, Shannon Greene, at (206) 220-6775.

-- Shannon Greene

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## Korean Visitors Learn About DSM



Two Korean energy professionals traveled to BPA to learn about demand side management planning. From left to right: John Hairston, Andy Ford, Jin-Mo Kim, Nam-Sung Ahn, and Mike Weedall, following a discussion of the Demand Exchange.

Nam-Sung Ahn, head of the Research and Policy group at the Korea Electric Power Research Institute, and his associate, Jin-Mo Kim, visited BPA this spring to learn about demand side management planning from Energy Efficiency representatives. Ahn and Kim are responsible for writing the DSM plan for Korea and were brought here by Andy Ford of Washington State University.

-- Terry Oliver (503)230-5853

many hours) and what they can expect to pay following the retrofit," Hupp said.

So, what's in this for the City, which loses revenue to reduced consumption? The program saves customers money, which casts the City in a favorable light. And the retrofits also help to meet BPA's 10 percent load reduction.

— Jack Callahan (503) 230-4496



# Training & Other Opportunities

## Events . . .

- The Northwest Public Power Association is sponsoring a Northwest Innovations Conference September 22-25 in Kalispell, MT. The conference will bring together regional utilities and energy experts to share information and ideas. For more information, call Charlie Roe at NWPPA, (360) 254-0109 or send an e-mail to [charlie@nwppa.org](mailto:charlie@nwppa.org).
- July 13, noon to 6:00 p.m. Presbyterians for Restoring Creation are holding an Energy Fair at Linfield College, McMinnville, OR.

## Educational Kits Available

**Get EcoSmart!** will be offered through BPA load-following utilities to seventh grade students as a pilot program for school year 2002-2003. This conservation education program is designed to get students and their families to use energy more efficiently and to appreciate the environmental impact of energy use.

**Get EcoSmart!** uses computer technology to make the student and teacher experience exciting and fun, as well as informative and educational. The program is designed to meet several of the National Standards and Benchmarks for Science Education and many state-specific curriculum objectives. **Get EcoSmart!** training for teachers will be offered in the summer and fall as needed.

For more information contact your Account Executive or your Energy Efficiency Representative.

Energy Efficiency continues to offer **Classroom-in-a-Box** kits to fourth and fifth grade teachers. Utility customers can request the kits from their Account Executive or Energy Efficiency Representative. The boxes can be sent to either the utility for co-branding and delivery, or directly to the school. Kits include a 21-panel mural to color, study and critique, take-home lessons, plus crayons and a compact fluorescent-incandescent bulb



comparison wheel. The kit also describes the link between the material and state standards for elementary education. The thirty pages of printed material can also be downloaded from the web at <http://www.bpa.gov/Energy/N/news/ccs/schools.shtml>, then duplicated for class use.

[www.bpa.gov/Energy/N/news/ccs/schools.shtml](http://www.bpa.gov/Energy/N/news/ccs/schools.shtml), then duplicated for class use.

-- Becky Clark (503) 230-3158

## Forums to Produce Energy Web Pilot

Visualize a region where the power grid is supplemented by dozens, hundreds, or even thousands of mini-power plants, all computer controlled. Many businesses and homes will have equipment that moderates demand or produces a small amount of power to help off-set their needs. The equipment may also provide power back to the main grid. The supplemental power and demand-management equipment, connecting to the grid and responding as needed, is called an Energy Web.

A group of visionaries from BPA's Energy Efficiency plan three "Sponsor Forums" in the Northwest this summer to refine a region-wide pilot program to get this Energy Web started and studied. Each day-long meeting will:

- explore the workings of an effective Energy Web
- describe technology and control strategies needed to build a successful Energy Web
- define opportunities to sponsor the Energy Web pilot.

Many resources will be needed, but most will be small, each capable of less than 1/2 megawatt of power. One resource may be a windmill, one may be a fuel cell, one may be a solar application, one may be a turbine. All will be programmed to come on or go off in an efficient operation, seamless support for the power grid.

Included in the meetings this summer will be the Pacific Northwest National Laboratory, and technology vendors Celerity and Sixth Dimensions. Seattle, Tri-Cities and Ashland are the proposed sites for the forums, with an October 24-25 event planned for Portland. For more information, contact your Account Executive or Energy Efficiency Representative.

-- Terry Oliver (503) 230-5853

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## David Douglas, continued from page 2

turbine have a combined generating capacity of 2.4 kW (1.5 kW and 0.9 kW, respectively). BPA Energy Efficiency, led by Tony Koch and Phil Choma, donated about \$800 in Telemetricx wireless metering equipment that will measure the net AC renewable energy delivered to the electric grid. The metering systems records net energy production to grid in 15 minute intervals and communicates this data wirelessly to an Internet website via a cellular PCS network. BPA's Transmission Business Line donated a 30 foot steel tower for the installation of the PV panel and wind turbine. No school district funds were used. Students have completed the entire project, from creating the trolley out of two discarded school busses to laying the track.

(Photos by Becky Clark and Adam Hadley)

-- Tony Koch (206) 220-6777 or Phil Choma (503) 230-5327

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